

# Boston Patterns and Trends in Drug Abuse: 2013

Daniel P. Dooley<sup>1</sup>

## ABSTRACT

*The key finding for Boston for 2013 was the continuing high level of abuse and continuing increasing indicators for heroin. Boston's most recent cocaine indicators were mixed at high levels of abuse. The rate of unintentional cocaine overdose deaths was fairly stable at 5.3 per 100,000 population in 2011 and 5.0 per 100,000 in 2012. The rate of unintentional cocaine overdose/poisoning hospital patient encounters increased from 24.3 per 100,000 population in fiscal year (FY) 2010, to 29.3 per 100,000 in fiscal FY 2011, and to 34.3 per 100,000 in FY 2012. The rate of unique-person cocaine drug dependence and abuse hospital patient encounters decreased steadily from 411.5 per 100,000 population in FY 2008 to 313.4 per 100,000 in FY 2012. As a proportion of primary drug treatment admissions, cocaine (including crack) remained stable at approximately 5 percent from 2010 to 2013. Additionally, the proportion of all unique-person treatment clients who identified cocaine (including crack) as a primary, secondary, or tertiary drug was stable from 2012 to 2013 at 32 and 33 percent, respectively. Cocaine ranked second among drug reports from items seized and analyzed by the National Forensic Laboratory Information System (NFLIS) laboratories, accounting for 20 percent of all reports in 2013. Among Boston public high school students in 2013, 4 percent reported ever using cocaine. Heroin abuse indicators were increasing at already high levels. The rate of unintentional heroin/other opioid overdose deaths increased by 51 percent from 8.6 per 100,000 population in 2010 to 13.0 per 100,000 in 2012. During approximately the same 3-year period, the rate of heroin overdose hospital patient encounters increased by 76 percent, from 37.6 per 100,000 population in FY 2010 to 66.1 per 100,000 in FY 2012. Heroin increased steadily as a proportion of all primary drug treatment admissions from 49 percent in 2010 to 57 percent in 2013. Additionally, the proportion of all unique-person treatment clients who identified heroin as a primary, secondary, or tertiary drug increased steadily from 47 percent 2010 to 52 percent in 2013. Heroin reports ranked third among reports from drug items seized and analyzed by NFLIS laboratories, representing 19 percent of all reports in 2013. Among Boston public high school students in 2013, 3 percent reported ever using heroin. Indicators for other opioids were mixed at moderate levels. The rate of other (nonheroin) opioid overdose hospital patient encounters increased by 66 percent, from 28.0 per 100,000 population in FY 2008 to 46.4 per 100,000 in FY 2012. Other opioids decreased slightly as a proportion of all primary drug treatment admissions, from 5 percent in 2010 to 3 percent in 2013. Additionally, the proportion of all unique-person treatment clients who identified other opioids as a primary, secondary, or tertiary drug decreased from 16 percent in 2010 to 13 percent in 2013. Oxycodone reports ranked fourth among reports from drug items seized and analyzed by NFLIS laboratories, constituting 5 percent of all reports in 2013. Benzodiazepine abuse indicators were mixed (increasing and stable) at moderate levels. Benzodiazepines were present in 13 percent of unintentional drug overdose deaths in 2012. The rate*

<sup>1</sup>The author is affiliated with the Boston Public Health Commission.

*of benzodiazepine overdose hospital patient encounters increased from 26.9 per 100,000 population in FY 2009, to 37.0 per 100,000 in FY 2011, and to 41.4 per 100,000 in FY 2012. The proportion of all unique-person treatment clients who identified benzodiazepines as a primary, secondary, or tertiary drug was stable between 15 and 16 percent from 2011 to 2013. Clonazepam reports ranked sixth among reports from drug items seized and analyzed by NFLIS laboratories, representing 2 percent of all reports in 2013. Marijuana indicators were mixed (increasing and stable) at varied levels. The rate of hallucinogen (including marijuana) overdose hospital patient encounters increased from 4.8 per 100,000 population in FY 2011 to 9.9 per 100,000 in FY 2012. The proportion of unique clients citing marijuana as a primary, secondary, or tertiary drug was stable at 21 percent from 2012 to 2013. Marijuana/cannabis was the top-ranking drug among NFLIS drug reports, representing 36 percent of all reports in 2013. Methamphetamine and MDMA (3,4-methylenedioxymethamphetamine) indicators remained relatively low overall in Boston (below 1 percent for all available data sources).*

## INTRODUCTION

### Area Description

According to the 2010 U.S. Census, the city of Boston has a population of 617,594. A larger 7-county Boston Metropolitan Statistical Area (MSA) has a population of 4,552,402. The 2010 racial composition for the city of Boston includes 47 percent White non-Hispanic, 22 percent Black non-Hispanic, 17 percent Hispanic/Latino, and 9 percent Asian. The racial composition for the Boston MSA includes 75 percent White non-Hispanic, 7 percent Black non-Hispanic, 9 percent Hispanic/Latino, and 6 percent Asian. The age distribution for the city of Boston consists of 36 percent age 0–24, 36 percent age 25–44, and 28 percent age 45 and older. The age distribution for the Boston MSA consists of 32 percent age 0–24, 27 percent age 25–44, and 41 percent age 45 and older.

Several environmental characteristics influence drug trends in Boston and throughout Massachusetts:

- Contiguity with five neighboring States (Rhode Island, Connecticut, New York, Vermont, and New Hampshire), linked by a network of State and interstate highways;
- Proximity to Interstate 95, which connects Boston to all major cities on the east coast, particularly New York;
- A public transportation system that provides easy access to communities in eastern Massachusetts;
- A large population of college students in both the greater Boston area and western Massachusetts;
- Logan International Airport and several regional airports within a 1-hour drive of Boston; and
- A high number of homeless individuals seeking shelter.

## Data Sources

This report presents data from a number of different sources with varied Boston area geographical parameters (i.e., city of Boston and Boston MSA). For this reason, additional caution is advised when attempting to generalize across data sources. A description of the relevant boundary parameters is included with each data source description. For simplicity, these are typically referred to as “Boston” throughout the text of the report. In addition, there are many systemic factors specific to each data source that do not directly relate to the level of abuse in the larger population but may contribute to changes apparent in the data. For example, 2012 death data are considered preliminary and may change as a result of data validation/cleaning, or changes in treatment funding may affect overall treatment capacity as well capacity differences across treatment modalities. Identifying factors that likely influence data differences over time is a difficult task. To what extent such systemic factors influence totals and subpopulation differences observed within a data source is difficult to determine and often unknown. Conclusions drawn from these data sources are subject to such limitations. At best, the data presented here offer a partial picture of Boston’s collective drug abuse experience. Overall understanding of drug use and abuse patterns improves as current data sources improve, new data sources develop, and analysts improve their collective knowledge of drug abuse epidemiology.

Data sources used in this report include the following:

- **Drug abuse overdose mortality data** for city of Boston residents for calendar years 2003 to 2012 were provided by the Massachusetts Department of Public Health (MDPH), Registry of Vital Records and Statistics. Death data are considered preliminary for 2012. Cases were identified using relevant International Classification of Diseases (ICD)-10 codes. Age-adjusted rates were calculated using population estimates derived from interpolation/extrapolation of 2000 and 2010 U.S. Census data and the 2000 U.S. Standard population distribution of residents age 12 and older (exhibit 1).
- **Unintentional (includes undetermined intent) drug overdose/poisoning and drug dependence/abuse hospital patient encounters** for city of Boston residents for fiscal years (FYs) 2003 through 2012 (October–September) were derived from hospital case mix files provided by the Massachusetts Center for Health Information and Analysis (formerly the Division of Health Care Finance and Policy). Within this report, patient encounters refer to discharges from hospital inpatient care, observational care, or emergency department (ED) care. Each patient encounter refers to a unique medical episode (i.e., visit to the hospital). Patients transferred from one hospital setting to another (e.g., ED to hospital inpatient) are counted once within the data. Cases were identified using relevant ICD-9-CM codes. Age-adjusted rates of patient encounters were calculated using population estimates derived from interpolation/extrapolation of 2000 and 2010 U.S. Census data and the 2000 U.S. Standard population distribution of residents age 12 and older (exhibits 2a and 2b).
- **State-funded substance abuse treatment admissions data** for city of Boston resident clients with some comparison to admissions of clients from the rest of Massachusetts for calendar years (CYs) 2004 through 2013 were provided by the MDPH, Bureau of Substance Abuse Services. Treatment data refer to both the total number and percent distributions of treatment admissions

of clients who may or may not have been admitted more than once within a calendar year and to unique-client admissions as specified (exhibits 3b, 4a–4d). Age-adjusted rates of unique-client admissions were calculated using population estimates derived from interpolation/extrapolation of 2000 and 2010 U.S. Census data and the 2000 U.S. Standard population distribution of residents age 12 and older (exhibit 3a).

- **Drug arrest data** for the city of Boston for 2009 through 2012 were provided by the Boston Police Department, Drug Control Unit and Office of Research and Evaluation. For arrest data only, Black and White racial designations include those who identify themselves as Hispanic. Also, due to a 2009 change in Massachusetts' marijuana possession law, drug class trending considerations are confined to observed changes from 2009 to 2012 (exhibit 5).
- **Reports from seized and analyzed drug items** for the seven-county Boston MSA, including the Massachusetts counties of Essex, Middlesex, Norfolk, Plymouth, Suffolk, as well as Rockingham and Strafford Counties in New Hampshire, for 2013, were provided by the National Forensic Laboratory Information System (NFLIS) Data Query System (DQS), Drug Enforcement Administration (DEA). The drug report totals represent a limited subset of all drug reports as a result of only one of three laboratories reporting data for the Boston area for 2013. As a result, comparison with prior years is discouraged and not presented within this report (exhibit 6).
- **Drug price, purity, and availability information** covering the second half of 2013 for New England were provided by the DEA, New England Field Division Intelligence Group, May 2014 (exhibit 7). Additionally, the DEA's Heroin Domestic Monitoring Program (HDMP) provided information on heroin purity and availability.
- **Boston public high school student drug use data** covering 2013 from the Youth Risk Behavior Survey (YRBS) were provided by the Boston Public School Department and Centers for Disease Control and Prevention (CDC).

## DRUG ABUSE PATTERNS AND TRENDS

### Cocaine/Crack

Boston's most recent cocaine/crack indicators were mixed at high levels of abuse. In 2012, there were 23 unintentional cocaine overdose deaths. Although this number was 53 percent below the peak in 2006, the rate of unintentional cocaine overdose mortality was fairly stable for the most recent 3 years of data (3.9 deaths per 100,000 population in 2010, 5.3 per 100,000 in 2011, and 5.0 per 100,000 in 2012) (exhibit 1).

The rate of unintentional cocaine overdose/poisoning hospital patient encounters increased from 24.3 per 100,000 population in 2010 to 34.3 per 100,000 in 2012 (exhibit 2a). In 2012, the rate of cocaine overdose/poisoning patient encounters for Black residents (76.4 per 100,000) was nearly four times that for White residents (21.4 per 100,000) and more than three times the rate for Latinos (24.9 per 100,000). In 2012, there were 1,536 unique-patient cocaine dependence/abuse hospital patient encounters. The rate of cocaine dependence/abuse patient encounters decreased by 24 percent, from 414.9 per 100,000 residents in 2006 to 313.4 per 100,000 in 2012 (exhibit 2b).

The proportion of unique treatment clients reporting cocaine/crack as a primary, secondary, or tertiary drug decreased from 45 percent in 2008, to 32 percent in 2012, and to 33 percent in 2013 (exhibit 3a). In 2013, 700 treatment admissions (5 percent of all admissions) reported cocaine/crack as the primary drug (exhibit 3b), and there were an additional 3,311 admissions (32 percent of all admissions) with cocaine/crack reported as a secondary or tertiary drug. Of the cocaine/crack primary admissions, 58 percent identified crack and 42 percent identified powder cocaine as the primary drug in 2013. Having decreased steadily from 10 percent in 2005 to 5 percent in 2010, the proportion of admissions reporting cocaine/crack as the primary drug remained stable from 2010 to 2013 (exhibit 3b). From 2005 to 2013, the number of crack primary admissions decreased by 60 percent, and the number of powder cocaine admissions decreased by 49 percent. Twenty-six percent of the 700 cocaine/crack primary drug admissions in 2013 reported no other secondary drug. Of the 515 cocaine/crack primary drug admissions reporting a different secondary drug, 41 percent reported alcohol, 24 percent reported heroin, and 16 percent reported marijuana as the secondary drug.

Exhibit 4a shows demographic characteristics of cocaine primary treatment admissions in Boston. In 2013, 58 percent of cocaine admissions were male clients, and 41 percent were female clients. Cocaine clients tended to be older; just 6 percent of cocaine/crack treatment primary admissions were younger than 26; 23 percent were age 26–34; and 70 percent were 35 and older. From 2007 to 2013, the proportion of cocaine admissions age 18–25 decreased from 12 to 6 percent (exhibit 4a). The 2013 racial/ethnic group distribution for cocaine/crack admissions (45 percent Black, 35 percent White, 16 percent Latino) revealed a shift toward higher White proportions (up from 25 percent in 2004), while the Black proportion remained at a lower level (down from 56 percent in 2004) (exhibit 4a).

There were 1,209 Class B (mainly cocaine and crack) drug arrests in 2012. Although Class B arrests accounted for the largest proportion of drug arrests (43 percent) in the city of Boston in 2012, the proportion decreased from 49 percent in 2011 (exhibit 5). In 2012, 85 percent of Class B arrestees were male, and 15 percent were female. The gender distribution skewed overwhelmingly male from 2002 to 2012, with the percentage of females ranging from 11 to 15 percent during the time period. The age distribution of Class B arrestees in 2012 was 28 percent younger than 25, 43 percent age 25–39, and 39 percent age 40 or older. The proportion of Class B arrestees age 40 and older in 2012 represented a dramatic increase from the previous 6-year average of 31 percent between 2006 and 2011. Previously, from 2002 to 2005, the proportion remained near 25 percent annually. The racial/ethnic distribution of Class B arrestees was 43 percent White (including Hispanic), 57 percent Black (including Hispanic), and 21 percent Hispanic in 2012. From 2004 to 2012, the proportion of Black (including Hispanic) arrestees decreased from 68 to 57 percent, while the proportion of White (including Hispanic) arrestees increased from 31 to 43 percent.

There were 1,729 reports of cocaine/crack among drug items seized and analyzed by NFLIS laboratories in 2013, ranking second among total reports (exhibit 6). The DEA reported that retail “street-level” cocaine cost between \$18 and \$160 per gram in the second half of 2013 (exhibit 7), compared with a range of \$50–\$100 per gram in 2010. A rock of crack cost \$10–\$100. Cocaine was considered available at variable levels of purity in Boston and throughout New England. According to the 2013 YRBS, 4 percent of Boston public high school students reported having used cocaine during their lifetime.



## Heroin

Heroin remained one of the most heavily abused drugs in Boston. The most recent indicators show heroin abuse increasing from very high levels.

In 2012, there were 62 unintentional heroin/opioid overdose deaths. Although down by 33 percent from 2006 to 2012, the heroin/opioid overdose mortality rate increased by 51 percent from 8.6 deaths per 100,000 population in 2010 to 13.0 per 100,000 in 2012 (exhibit 1).

The rate of unintentional heroin overdose/poisoning hospital patient encounters increased by 76 percent from 37.6 per 100,000 population in 2010 to 66.1 per 100,000 in 2012 (exhibit 2a). In 2012, the rate for White residents (89.4 per 100,000) was twice the rate for Black residents (44.8 per 100,000) and 67 percent higher than the rate for Latino residents (53.4 per 100,000). In 2012, there were 3,909 unique-patient heroin/opioid dependence/abuse hospital patient encounters among Boston residents. The rate of unique-patient heroin/opioid dependence/abuse hospital patient encounters increased by 14 percent from 386.6 per 100,000 population in 2011 to 441.4 per 100,000 in 2012 (exhibit 2b).

The proportion of unique treatment clients reporting heroin as a primary, secondary, or tertiary drug increased from 47 percent in 2010 to 52 percent in 2013 (exhibit 3a). In 2013, 8,690 treatment admissions (57 percent of all admissions) reported heroin as the primary drug (exhibit 3b), and there were an additional 579 admissions (4 percent of all admissions) with heroin reported as either a secondary or tertiary drug (data not shown). The proportion of admissions with heroin reported as the primary drug reached the highest level in 10 years of reported data in 2013 (exhibit 3b). Forty-seven percent of the 8,690 heroin primary drug admissions in 2013 reported no secondary drug. Of the 4,569 heroin primary drug admissions reporting a secondary drug, 32 percent reported cocaine, 27 percent reported alcohol, 25 percent reported benzodiazepines, and 9 percent reported another opioid as the secondary drug.

Exhibit 4b shows demographic characteristics of heroin primary treatment admissions in Boston. In each year from 2004 to 2013, nearly three-fourths of heroin admissions were male clients, and a little more than one-fourth were female clients. In recent years, the age distribution of heroin admissions shifted to older ages, with the proportion of admissions age 18–25 down from 23 percent in 2009 to 16 percent in 2013. The racial distribution for heroin admissions shifted over 10 years, with increasing proportions of White client admissions (up from 58 percent in 2004 to 64 percent in 2013) and decreasing proportions of Black client admissions (down from 17 percent in 2004 to 11 percent in 2013), but proportions were fairly stable from 2007 to 2013 (exhibit 4b). The proportion of heroin primary admissions reporting injecting as the preferred route of administration increased steadily from 79 percent in 2004 to 85 percent in 2013. Only 56 percent of Black heroin primary drug client admissions reported injection drug use as the preferred route, compared with 93 percent of Asian, 83 percent of Latino, and 91 percent of White client admissions in 2013.

There were 803 Class A (mainly heroin and other opiates) drug arrests in 2012 (exhibit 5). The proportion of Class A arrests increased from 22 percent in 2009 to 28 percent in 2012. The gender distribution of Class A arrestees remained fairly stable from 2001 to 2012, with males accounting for more than four-fifths of the arrests each year. The racial/ethnic distribution of Class A arrestees was 70 percent White (including Hispanic), 29 percent Black (including Hispanic), and 42 percent

Hispanic in 2012. The proportion of White (including Hispanic) Class A arrestees increased from 63 percent in 2010 to 70 percent in 2012 (arrestee demographic data not shown).

In 2013, there were 1,652 reports of heroin among drug items seized and analyzed by NFLIS laboratories, ranking third among all reports. The proportion of heroin reports among all drug reports was 19 percent in 2013 data (exhibit 6).

Data from the HDMP reveal that heroin purchased in Boston and throughout New England is predominantly South American in origin and distributed in clear or colored glassine or wax packets. The DEA's New England Field Division reported that heroin remained readily available from source countries, including Colombia, the Dominican Republic, and Guatemala. Documented supply sources route heroin through New York and New Jersey to Boston and other New England cities and towns. The average purity of street purchases decreased from 50 percent in 2002 to 29 percent in 2005 and ranged between 15 and 18 percent from 2006 to 2011. The street-level price of a pure milligram of heroin increased by 62 percent from 2009 to 2010 then decreased by 40 percent from 2010 to 2011. From 2005 to 2006, the price per milligram pure nearly doubled (from \$0.88 to \$1.63, respectively) and remained in a higher price range (\$1.34–\$2.22) from 2006 to 2011. The most recent DEA data indicated that in New England, street-level (retail) heroin typically cost \$50–\$200 per gram (exhibit 7). According to the 2013 YRBS, 3 percent of Boston public high school students reported having used heroin during their lifetime.

## **Narcotic Analgesics**

Narcotic analgesic (other nonheroin opioids) abuse indicators were mixed at moderate levels. Overdose mortality data for narcotic analgesics (i.e., other opioids) is presented with heroin within the heroin section.

From 2006 to 2012, the rate of unintentional other (nonheroin) opioid overdose/poisoning hospital patient encounters increased by 57 percent (46.4 patient encounters per 100,000 population) (exhibit 2a). In 2012, the rate of opioid overdose patient encounters for White residents (68.0 per 100,000) was 80-percent higher than the rate for Black residents (37.8 per 100,000) and 145-percent higher than the rate for Latino residents (27.8 per 100,000).

The proportion of unique treatment clients reporting other opioids as a primary, secondary, or tertiary drug increased from 10 percent in 2005 to 16 percent in 2010 and then decreased to 13 percent in 2013 (exhibit 3a). In 2013, 478 treatment admissions (3 percent of all admissions) reported other opioids as primary drugs (exhibit 3b), and 1,181 admissions (8 percent of all admissions) reported other opioids as primary, secondary, or tertiary drugs. The proportion of other opioid primary drug admissions peaked at 5 percent in 2010 and decreased to 3 percent by 2013 (exhibit 3b). Thirty-three percent of the 478 other opioid primary drug admissions reported no secondary drug. Of the 315 other opioid primary drug admissions citing a secondary drug, 28 percent reported alcohol, followed by 19 percent for heroin, 17 percent for benzodiazepines, 11 percent for marijuana, and 14 percent for cocaine; 8 percent reported another opioid as the secondary drug.

Exhibit 4c shows demographic characteristics of other opioid primary treatment admissions in Boston. Approximately two-thirds of admissions were male, and about one-third were female between 2004 and 2013. The proportion of younger client admissions (age 18–25) decreased sharply from

37 percent in 2006 to 16 percent in 2013. The proportion of client admissions age 26–34 increased from 24 percent in 2005 to 39 percent in 2013. The proportion of older client admissions (age 35 and older) ranged from 40 to 45 percent between 2011 and 2013. The proportion of White client admissions decreased steadily from 92 percent in 2004 to 75 percent in 2013. Over the same time period, the proportion of Black and Latino client admissions increased from 4 to 11 percent and from 3 to 9 percent, respectively.

In 2013, there were 409 drug reports from items seized and analyzed by NFLIS laboratories identified as oxycodone (5 percent of all drug reports), making oxycodone the fourth most reported drug among total reports (exhibit 6). Other opioids among the top 20 NFLIS drug reports in 2013 included buprenorphine ( $n=201$ , ranking 5th), naloxone ( $n=85$ , ranking 8th), hydrocodone ( $n=34$ , ranking 14th), and methadone ( $n=24$ , ranking 18th). Exhibit 6 lists the top 20 NFLIS drug reports.

The DEA reported that availability of narcotic analgesics was high throughout New England. An 80-milligram OxyContin® tablet typically cost between \$30 and \$120 (exhibit 7). The price of an 80-milligram oxycodone tablet was \$10–\$50, and a 30-milligram Percocet® tablet was \$14–\$30.

## Benzodiazepines

Benzodiazepine abuse indicators were increasing or stable at moderate levels. In 2013, there were nine unintentional benzodiazepine overdose deaths.

In 2012, there were 209 unintentional (including undetermined intent) benzodiazepine overdose/poisoning hospital patient encounters among Boston residents. The rate of benzodiazepine overdose/poisoning hospital patient encounters increased by 54 percent from 26.9 per 100,000 population in 2009 to 41.4 per 100,000 in 2012 (exhibit 2a).

The rate of unique-patient hospital dependence/abuse patient encounters for benzodiazepines, barbiturates, other tranquilizers, and sedatives increased by 58 percent from 35.9 per 100,000 population in 2007 to 56.7 per 100,000 in 2012 (exhibit 2b).

The proportion of unique treatment admission clients reporting benzodiazepines as a primary, secondary, or tertiary drug increased steadily from 8 percent in 2005 to 16 percent in 2012 and was stable from 2012 to 2013 (exhibit 3a). In 2013, 171 treatment admissions cited benzodiazepines as primary drug, accounting for 1 percent of all treatment admissions. The proportion of benzodiazepines cited as primary drug among treatment admissions remained low, at 1 percent, from 2009 to 2013 (exhibit 3b).

In 2013, there were 135 drug reports for clonazepam among drug items seized and analyzed by NFLIS laboratories (2 percent of all drug reports) and 76 reports of alprazolam among items seized and analyzed by NFLIS. Clonazepam was the sixth most reported drug and alprazolam the ninth most reported drug among NFLIS reports. Other benzodiazepines among the top 20 NFLIS drug reports in 2013 included lorazepam ( $n=24$ , ranking 19th) and diazepam ( $n=25$ , ranking 17th) (exhibit 6). Arrest data were unavailable for benzodiazepines.



## **Methamphetamine/Amphetamines**

Methamphetamine abuse indicators remained low overall in Boston. From 2004 to 2013, less than 1 percent of all treatment admissions identified methamphetamine as a primary, secondary, or tertiary drug. Methamphetamine drug reports totaled 28 and ranked 16th among all reports from drugs analyzed in NFLIS laboratories in 2013 (exhibit 6). The DEA reported that the cost of methamphetamine was \$80–\$200 per gram in the second half of 2013. According to the 2013 YRBS, 2 percent of Boston public high school students reported having used methamphetamine during their lifetime.

## **Marijuana**

Marijuana indicators were mixed at varied levels of use/abuse. In 2012, there were 1,123 unique-patient marijuana dependence/abuse hospital patient encounters among Boston residents. The rate of marijuana dependence/abuse hospital patient encounters increased by 139 percent from 79.5 per 100,000 population in 2005 to 190.3 per 100,000 in 2012 (exhibit 2b).

The proportion of unique treatment admission clients reporting marijuana as a primary, secondary, or tertiary drug decreased from 27 percent in 2009 to 21 percent in 2012 and 2013 (exhibit 3a). In 2013, 512 treatment admissions (3 percent of all admissions) reported marijuana as the primary drug (exhibit 3b), and 1,835 admissions (12 percent of the total) reported marijuana as either a primary, secondary, or tertiary drug. The proportion of all treatment client admissions that reported marijuana as their primary drug decreased slightly from 5 percent in 2009 to 3 percent in 2013.

Thirty-seven percent of the 512 total marijuana primary drug treatment admissions reported no secondary drug in 2012. Of the 270 marijuana primary drug admissions citing a secondary drug in 2013, 69 percent reported alcohol, 12 percent reported cocaine/crack, 6 percent reported heroin, and 8 percent reported other opioids as their secondary drug. Exhibit 4d shows demographic characteristics of marijuana primary treatment admissions in Boston. Over the 10-year period, the gender distribution remained relatively constant, with the annual proportion of male and female admissions at 75 percent male and 25 percent female. Between 2009 and 2013, the proportion of admissions age 17 and younger increased from 4 to 12 percent. The proportion of admissions of clients age 18–25 decreased from 50 percent in 2007 to 36 percent in 2013. The proportion of admissions for clients age 26 and older remained relatively constant over this time period. Black client admissions, having accounted for a little more than one-half of all marijuana primary drug admissions between 2004 and 2010, decreased from 54 percent in 2010 to 44 percent in 2013 (exhibit 4d).

There were 513 Class D (mainly marijuana) drug arrests in 2012. The proportion of Class D arrests among all drug arrests decreased from 21 percent in 2009 and 2010 to 18 percent in 2011 and 2012. The percentage of female Class D arrestees increased sharply to 21 percent in 2012 after being fairly stable at an average proportion of 7 percent between 2001 and 2010. In 2012, the proportion of White (including Hispanic) Class D arrestees was 32 percent, and Black (including Hispanic) Class D arrestees totaled 66 percent. The proportion of Hispanic Class D arrestees nearly doubled from 20 to 38 percent between 2009 and 2012.

In 2013, there were 3,100 marijuana reports among drug items seized and analyzed by NFLIS laboratories, ranking marijuana first among total reports. The proportion of marijuana reports among all drug reports was 36 percent (exhibit 6).

The DEA reported that marijuana remained readily available throughout the New England States, and it sold for \$80–\$350 per ounce (exhibit 7). According to the 2013 YRBS, 42 percent of Boston public high school students reported having used marijuana during their lifetime, compared with 38 percent in 2009.

## Other Drugs

### *MDMA (3,4-Methylenedioxymethamphetamine)*

MDMA, or ecstasy, indicators were possibly decreasing at already low levels of abuse. There were six reports of MDMA among items seized and analyzed by NFLIS laboratories in 2013.

The DEA reported that the availability of MDMA was “low but stable” in the second half of 2013, and it cost between \$10 and \$30 per dosage unit (exhibit 7). MDMA is primarily distributed and abused by teenagers and young adults at nightclubs, raves, and private parties. According to the 2013 YRBS, 5 percent of Boston public high school students reported having used MDMA during their lifetime.

### *Ketamine*

There were 16 ketamine NFLIS drug laboratory reports in 2013. The DEA reported that a vial of ketamine cost \$75–\$100 per dosage unit in Springfield, Massachusetts (exhibit 7).

### *Phencyclidine (PCP)*

PCP is back on the watch list. There were 14 PCP reports in 2013 among items seized and analyzed by NFLIS laboratories. The DEA reported that PCP cost between \$10 and \$20 per tea leaf bag (1–2 grams) (exhibit 7).

### *Psilocybin/Psilocin (Mushrooms)*

There were 18 psilocybin/psilocin reports among drug items seized and analyzed by NFLIS laboratories in 2013.

### *Synthetic Cannabinoids*

The following cannabinoids were among the 8,729 drug reports among items analyzed by NFLIS in 2013: 45 reports of XLR-11 (1-(5-fluoropentyl-1H-3-YL)(2,2,3,3-tetramethylcyclopropyl) methanone); 10 reports for AB-Fubinaca; 8 reports for PB-22; 2 reports for 5F-PB-22; 2 reports of UR-144 ((1-pentylindol-3-YL)-(2,2,3,3-tetramethylcyclopropyl)methanone); 1 report of AKB48 (N-(1-adamantyl)-1-pentyl-1H-indazole-3-carboxamide); and 1 report of AB-Pinaca.

### *Others (Miscellaneous)*

Among the 8,729 NFLIS drug reports in 2013, there were 69 reports of methylone (N-Methyl-3,4-methylenedioxycathinone), 55 reports of phenylimidothiazole isomer undetermined (possible levamisole), a single report of MDPV (3,4-methylenedioxypyrovalerone), and a single report of 5-MeO-DIPT (5-Methoxy-N,N-diisopropyltryptamine).

## INFECTIOUS DISEASES RELATED TO DRUG ABUSE

The HIV/AIDS prevalence rate for Boston residents originally diagnosed in Massachusetts was 857.0 per 100,000 population on December 31, 2012. There were 5,404 people living in Boston with HIV/AIDS who were originally diagnosed in Massachusetts. The primary exposure mode for these include 13 percent who had been injection drug users (IDUs), an additional 4 percent who had both MSM (male sex with male) and IDU exposures, and 21 percent with an unknown/undetermined exposure mode.

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*For inquiries concerning this report, contact Daniel P. Dooley, Director of Analysis and Surveillance, Research and Evaluation Office, Boston Public Health Commission, 1010 Massachusetts Avenue, Boston, MA 02118, Phone: 617-534-2360, Fax: 857-288-2212, E-mail: [ddooley@bphc.org](mailto:ddooley@bphc.org).*

**Exhibit 1. Number and Rate per 100,000 Population of Unintentional Drug Overdose Mortality,<sup>1</sup>  
Boston Residents: 2003–2012**

| Drug                       | Rate and Number (N) |              |              |               |               |              |              |              |              |                   |
|----------------------------|---------------------|--------------|--------------|---------------|---------------|--------------|--------------|--------------|--------------|-------------------|
|                            | 2003                | 2004         | 2005         | 2006          | 2007          | 2008         | 2009         | 2010         | 2011         | 2012 <sup>2</sup> |
| All Drug Overdose          | 21.6<br>(101)       | 16.1<br>(76) | 14.3<br>(67) | 26.4<br>(122) | 22.8<br>(105) | 14.3<br>(69) | 18.1<br>(87) | 11.1<br>(55) | 14.1<br>(70) | 14.3<br>(68)      |
| Heroin/Opioids<br>Overdose | 15.3<br>(72)        | 11.4<br>(55) | 10.2<br>(47) | 19.4<br>(90)  | 18.1<br>(82)  | 10.6<br>(52) | 13.6<br>(67) | 8.6<br>(43)  | 11.6<br>(59) | 13.0<br>(62)      |
| Cocaine Overdose           | 10.7<br>(50)        | 7.5<br>(35)  | 4.8<br>(22)  | 10.7<br>(50)  | 9.4<br>(44)   | 6.7<br>(32)  | 5.6<br>(25)  | 3.9<br>(20)  | 5.3<br>(26)  | 5.0<br>(23)       |

<sup>1</sup>Age-adjusted rate per 100,000 residents age 12 and older. Rate denominators based on estimates derived from 2000 and 2010 U.S. Census data for city of Boston.

<sup>2</sup>Data for 2012 are considered preliminary.

SOURCE: Massachusetts Department of Public Health Registry of Vital Records; data analysis by the Boston Public Health Commission, Research Office

**Exhibit 2a. Rate Per 100,000 Population of Total Boston Resident Unintentional Drug Overdose/  
Poisoning Hospital Patient Encounters,<sup>1</sup> Boston Residents: FYs 2003–2012**

| Drug Overdose/<br>Poisoning               | Rate by Year |      |      |      |      |      |      |      |      |      |
|---|--------------|------|------|------|------|------|------|------|------|------|
|   | 2003         | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
| Heroin                                    | 70.1         | 71.0 | 64.5 | 62.2 | 54.7 | 58.1 | 55.4 | 37.6 | 50.3 | 66.1 |
| Other Opioids                             | 29.9         | 27.4 | 32.1 | 29.6 | 30.8 | 28.0 | 34.2 | 36.3 | 40.9 | 46.4 |
| Cocaine                                   | 22.2         | 26.0 | 33.0 | 33.9 | 35.8 | 29.1 | 25.2 | 24.3 | 29.3 | 34.3 |
| Benzodiazepines                           | 29.2         | 28.7 | 32.0 | 28.5 | 27.6 | 30.8 | 26.9 | 36.0 | 37.0 | 41.4 |
| Hallucinogens<br>(Including<br>Marijuana) | 2.4          | 3.1  | 2.1  | 3.2  | 1.8  | 2.2  | 2.8  | 3.7  | 4.8  | 9.9  |
| Barbiturates/<br>Sedatives                | 5.0          | 5.9  | 4.6  | 10.5 | 5.6  | 7.0  | 7.6  | 5.5  | 10.9 | 9.5  |
| Antidepressants                           | 10.1         | 13.9 | 12.0 | 8.3  | 8.6  | 11.1 | 8.2  | 12.5 | 11.9 | 10.3 |
| Other Tranquilizers                       | 7.5          | 7.6  | 9.0  | 7.5  | 5.9  | 10.4 | 8.2  | 7.1  | 11.1 | 11.7 |
| Amphetamine                               | 3.3          | 5.0  | 3.9  | 5.2  | 3.4  | 4.7  | 3.9  | 4.7  | 5.7  | 5.5  |

<sup>1</sup>Age-adjusted rate per 100,000 residents age 12 and older (defined by all unintentional drug overdose/poisoning-related visits within a given fiscal year, October–September). Rate denominators based on estimates derived from 2000 and 2010 U.S. Census data for city of Boston.

SOURCE: Massachusetts Center for Health Information and Analysis; data analysis by the Boston Public Health Commission, Research Office

**Exhibit 2b. Rate Per 100,000 Population of Unique-Patient Drug Dependence/Abuse Hospital Patient Encounters,<sup>1</sup> Boston Residents: FYs 2003–2012**

| Drug Dependence/Abuse                                      | Rate by Year |       |       |       |       |       |       |       |       |       |
|--|--------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|  | 2003         | 2004  | 2005  | 2006  | 2007  | 2008  | 2009  | 2010  | 2011  | 2012  |
| Heroin/Opioids   | 458.4        | 426.5 | 412.4 | 400.1 | 387.7 | 398.5 | 416.3 | 402.8 | 386.6 | 441.4 |
| Cocaine  | 352.3        | 330.2 | 367.0 | 414.9 | 411.5 | 411.5 | 380.8 | 352.9 | 343.6 | 313.4 |
| Marijuana/Cannabis   | 90.2         | 95.9  | 79.5  | 94.6  | 95.3  | 117.9 | 156.1 | 169.7 | 184.5 | 190.3 |
| Benzodiazepines/Barbiturates/Sedatives/Other Tranquilizers | 49.8         | 39.5  | 41.3  | 40.1  | 35.9  | 40.9  | 47.9  | 56.2  | 52.2  | 56.7  |
| Hallucinogens  | 2.6          | 2.4   | 2.3   | 2.6   | 1.8   | 1.8   | 2.7   | 2.4   | 2.6   | 1.9   |
| Amphetamine  | 7.9          | 7.9   | 9.6   | 7.9   | 8.8   | 10.4  | 10.9  | 15.8  | 14.4  | 12.0  |

<sup>1</sup>Age-adjusted rate per 100,000 residents age 12 and older (defined by unique patient identifications among all drug dependence/abuse related visits within a given fiscal year, October–September). Drug-related drug categories include codes for dependence, abuse, and poisoning. Rate denominators based on estimates derived from 2000 and 2010 U.S. Census data for city of Boston. SOURCE: Massachusetts Center for Health Information and Analysis; data analysis by the Boston Public Health Commission, Research Office

**Exhibit 3a. Percentage of Unique-Client Combined Primary, Secondary, and Tertiary Drug Treatment Admissions,<sup>1</sup> Boston Residents: 2004–2013**

| Drug            | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|-----------------|------|------|------|------|------|------|------|------|------|------|
| Alcohol         | 66.8 | 64.7 | 66.2 | 64.7 | 64.5 | 63.6 | 63.9 | 60.5 | 59.6 | 58.0 |
| Heroin          | 46.5 | 46.1 | 45.2 | 46.8 | 47.7 | 47.3 | 46.6 | 48.7 | 49.7 | 52.3 |
| Other Opioids   | 9.7  | 10.2 | 11.0 | 11.6 | 13.8 | 15.2 | 16.0 | 15.8 | 13.7 | 13.0 |
| Cocaine/Crack   | 39.8 | 42.9 | 44.8 | 43.1 | 44.6 | 40.4 | 38.6 | 35.6 | 32.3 | 32.5 |
| Marijuana       | 23.7 | 23.3 | 23.5 | 23.0 | 23.2 | 26.7 | 25.1 | 21.9 | 20.6 | 20.7 |
| Benzodiazepines | 8.2  | 8.1  | 9.8  | 10.5 | 11.5 | 12.4 | 13.8 | 15.1 | 15.7 | 15.4 |

<sup>1</sup>Defined as proportion of all unique client identifications among primary drug admissions within a given calendar year. SOURCE: Massachusetts Department of Public Health, Bureau of Substance Abuse Services; prepared by the Boston Public Health Commission, Research Office



**Exhibit 3b. Percentage of Total Admissions to State-Funded Substance Abuse Treatment Programs, and Total Numbers, by Primary Drug, Boston and Other Massachusetts Residents:<sup>1</sup> 2004–2013**

| <b>BOSTON</b>                        |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |
|--------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| <b>Drug</b>                          | <b>2004<br/>%</b> | <b>2005<br/>%</b> | <b>2006<br/>%</b> | <b>2007<br/>%</b> | <b>2008<br/>%</b> | <b>2009<br/>%</b> | <b>2010<br/>%</b> | <b>2011<br/>%</b> | <b>2012<br/>%</b> | <b>2013<br/>%</b> |
| Heroin                               | 48.8              | 46.2              | 46.1              | 48.9              | 49.5              | 49.8              | 49.3              | 51.9              | 54.3              | 56.6              |
| Alcohol                              | 35.2              | 35.3              | 36.3              | 34.7              | 33.3              | 32.7              | 34.6              | 32.9              | 32.4              | 30.7              |
| Cocaine/Crack                        | 7.9               | 9.6               | 8.9               | 8.4               | 8.3               | 7.2               | 5.4               | 5.5               | 4.5               | 4.6               |
| Other Opioids                        | 2.8               | 3.2               | 2.9               | 2.7               | 3.5               | 4.2               | 4.6               | 4.3               | 3.4               | 3.1               |
| Marijuana                            | 4.0               | 4.1               | 4.3               | 4.0               | 3.8               | 4.8               | 4.4               | 3.8               | 3.5               | 3.3               |
| Benzodiazepines                      | 0.5               | 0.5               | 0.6               | 0.6               | 0.8               | 1.0               | 1.1               | 1.2               | 1.3               | 1.1               |
| Other <sup>2</sup>                   | 0.8               | 1.1               | 0.9               | 0.7               | 0.8               | 0.4               | 0.5               | 0.5               | 0.6               | 0.6               |
| <b>Total Admissions<br/>(Number)</b> | <b>16,384</b>     | <b>16,770</b>     | <b>16,683</b>     | <b>17,023</b>     | <b>16,833</b>     | <b>17,001</b>     | <b>16,811</b>     | <b>15,637</b>     | <b>15,239</b>     | <b>15,357</b>     |
| <b>OTHER MASSACHUSETTS</b>           |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |
| <b>Drug</b>                          | <b>2004<br/>%</b> | <b>2005<br/>%</b> | <b>2006<br/>%</b> | <b>2007<br/>%</b> | <b>2008<br/>%</b> | <b>2009<br/>%</b> | <b>2010<br/>%</b> | <b>2011<br/>%</b> | <b>2012<br/>%</b> | <b>2013<br/>%</b> |
| Heroin                               | 36.6              | 36.5              | 35.1              | 34.7              | 36.1              | 38.2              | 37.1              | 39.6              | 44.9              | 50.3              |
| Alcohol                              | 43.0              | 42.3              | 42.0              | 42.0              | 41.2              | 40.3              | 39.4              | 37.2              | 34.8              | 33.1              |
| Cocaine/Crack                        | 7.2               | 7.4               | 8.3               | 7.9               | 6.7               | 5.4               | 4.6               | 4.3               | 3.8               | 3.3               |
| Other Opioids                        | 6.0               | 6.4               | 6.9               | 7.4               | 7.9               | 8.9               | 11.5              | 12.1              | 10.0              | 7.3               |
| Marijuana                            | 5.7               | 5.9               | 6.1               | 6.4               | 6.4               | 5.7               | 5.6               | 4.8               | 4.7               | 4.3               |
| Benzodiazepines                      | 0.7               | 0.8               | 0.9               | 0.9               | 0.9               | 1.1               | 1.2               | 1.5               | 1.2               | 1.0               |
| Other <sup>2</sup>                   | 0.7               | 0.7               | 0.7               | 0.7               | 0.9               | 0.5               | 0.5               | 0.5               | 0.7               | 0.7               |
| <b>Total Admissions<br/>(Number)</b> | <b>83,297</b>     | <b>83,291</b>     | <b>82,147</b>     | <b>87,039</b>     | <b>83,811</b>     | <b>86,483</b>     | <b>85,989</b>     | <b>84,411</b>     | <b>85,816</b>     | <b>87,637</b>     |

<sup>1</sup>Percentages and numbers totals based on total admissions with known primary drug.

<sup>2</sup>Other includes barbiturates, other sedatives, tranquilizers, hallucinogens, amphetamines, methamphetamine, "over-the-counter," and other drugs.

SOURCE: Massachusetts Department of Public Health, Bureau of Substance Abuse Services; prepared by the Boston Public Health Commission, Research Office

**Exhibit 4a. Demographic Characteristics of Client Admissions in State-Funded Substance Abuse Treatment Programs with a Primary Cocaine/Crack Problem, by Percentage, Boston Residents: 2004–2013**

| Characteristic                           | Percentage (%)   |              |              |              |              |              |            |            |            |            |
|--|------------------|--------------|--------------|--------------|--------------|--------------|------------|------------|------------|------------|
|  | 2004             | 2005         | 2006         | 2007         | 2008         | 2009         | 2010       | 2011       | 2012       | 2013       |
| <b>Gender</b>                            |                  |              |              |              |              |              |            |            |            |            |
| Male                                     | 59               | 65           | 63           | 60           | 59           | 59           | 60         | 52         | 54         | 58         |
| Female                                   | 41               | 35           | 37           | 40           | 41           | 41           | 39         | 47         | 45         | 41         |
| Transgender                              | *** <sup>1</sup> | ***          | ***          | ***          | ***          | ***          | 1          | 1          | ***        | ***        |
| <b>Race/Ethnicity</b>                    |                  |              |              |              |              |              |            |            |            |            |
| White                                    | 25               | 26           | 29           | 32           | 35           | 34           | 34         | 33         | 33         | 35         |
| Black                                    | 56               | 55           | 53           | 48           | 45           | 46           | 44         | 46         | 48         | 45         |
| Latino                                   | 16               | 16           | 14           | 16           | 15           | 14           | 17         | 16         | 15         | 16         |
| Asian                                    | ***              | ***          | ***          | ***          | ***          | 1            | ***        | ***        | ***        | ***        |
| Other                                    | 3                | 2            | 4            | 3            | 4            | 5            | 5          | 5          | 3          | 4          |
| <b>Age (in Years)</b>                    |                  |              |              |              |              |              |            |            |            |            |
| 17 and Younger                           | ***              | ***          | <1           | ***          | ***          | ***          | ***        | 1          | ***        | ***        |
| 18–25                                    | 8                | 10           | 10           | 12           | 9            | 9            | 9          | 8          | 6          | 6          |
| 26–34                                    | 27               | 22           | 22           | 22           | 21           | 22           | 24         | 22         | 24         | 23         |
| 35 and Older                             | 66               | 68           | 68           | 66           | 70           | 69           | 68         | 69         | 69         | 70         |
| <b>Total Primary Admissions (Number)</b> | <b>1,290</b>     | <b>1,602</b> | <b>1,493</b> | <b>1,436</b> | <b>1,398</b> | <b>1,219</b> | <b>910</b> | <b>859</b> | <b>680</b> | <b>700</b> |

<sup>1</sup>The symbol \*\*\* signifies fewer than six admissions.

SOURCE: Massachusetts Department of Public Health, Bureau of Substance Abuse Services; prepared by the Boston Public Health Commission, Research Office

**Exhibit 4b. Demographic Characteristics of Client Admissions in State-Funded Substance Abuse Treatment Programs with a Primary Heroin Problem, by Percentage, Boston Residents: 2004–2013**

| Characteristic                           | Percentage (%)   |              |              |              |              |              |              |              |              |              |
|--|------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
|  | 2004             | 2005         | 2006         | 2007         | 2008         | 2009         | 2010         | 2011         | 2012         | 2013         |
| <b>Gender</b>                            |                  |              |              |              |              |              |              |              |              |              |
| Male                                     | 73               | 74           | 75           | 73           | 72           | 72           | 73           | 73           | 73           | 74           |
| Female                                   | 27               | 26           | 25           | 27           | 28           | 28           | 27           | 27           | 27           | 25           |
| Transgender                              | *** <sup>1</sup> | ***          | < 1          | ***          | < 1          | < 1          | < 1          | ***          | < 1          | < 1          |
| <b>Race/Ethnicity</b>                    |                  |              |              |              |              |              |              |              |              |              |
| White                                    | 58               | 59           | 60           | 63           | 64           | 65           | 66           | 65           | 64           | 64           |
| Black                                    | 17               | 16           | 15           | 13           | 13           | 13           | 11           | 12           | 11           | 11           |
| Latino                                   | 23               | 22           | 21           | 21           | 19           | 18           | 18           | 19           | 21           | 21           |
| Asian                                    | 1                | 1            | 1            | 1            | 1            | 1            | 1            | 1            | 1            | 2            |
| Other                                    | 2                | 2            | 2            | 2            | 2            | 3            | 3            | 3            | 3            | 3            |
| <b>Age</b>                               |                  |              |              |              |              |              |              |              |              |              |
| 17 and Younger                           | < 1              | < 1          | < 1          | < 1          | < 1          | ***          | ***          | ***          | ***          | ***          |
| 18–25                                    | 22               | 24           | 23           | 25           | 24           | 23           | 22           | 19           | 18           | 16           |
| 26–34                                    | 32               | 30           | 33           | 33           | 32           | 33           | 36           | 36           | 37           | 38           |
| 35 and Older                             | 46               | 46           | 44           | 42           | 44           | 44           | 42           | 45           | 45           | 47           |
| <b>Total Primary Admissions (Number)</b> | <b>7,997</b>     | <b>7,748</b> | <b>7,690</b> | <b>8,324</b> | <b>8,330</b> | <b>8,465</b> | <b>8,291</b> | <b>8,111</b> | <b>8,281</b> | <b>8,690</b> |

<sup>1</sup>The symbol \*\*\* signifies fewer than six admissions.

SOURCE: Massachusetts Department of Public Health, Bureau of Substance Abuse Services; prepared by the Boston Public Health Commission, Research Office

**Exhibit 4c. Characteristics of Client Admissions in State-Funded Substance Abuse Treatment Programs with a Primary Problem with Other Opioids, by Percentage, Boston Residents: 2004–2013**

| Characteristic                           | Percentage (%)   |            |            |            |            |            |            |            |            |            |
|--|------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
|  | 2004             | 2005       | 2006       | 2007       | 2008       | 2009       | 2010       | 2011       | 2012       | 2013       |
| <b>Gender</b>                            |                  |            |            |            |            |            |            |            |            |            |
| Male                                     | 67               | 64         | 68         | 62         | 68         | 62         | 67         | 65         | 63         | 65         |
| Female                                   | 33               | 36         | 32         | 37         | 32         | 38         | 33         | 35         | 37         | 35         |
| Transgender                              | *** <sup>1</sup> | ***        | ***        | ***        | ***        | ***        | ***        | ***        | ***        | ***        |
| <b>Race/Ethnicity</b>                    |                  |            |            |            |            |            |            |            |            |            |
| White                                    | 92               | 91         | 89         | 86         | 84         | 86         | 85         | 83         | 78         | 75         |
| Black                                    | 4                | 5          | 6          | 7          | 6          | 4          | 6          | 7          | 9          | 11         |
| Latino                                   | 3                | 3          | 2          | 5          | 7          | 5          | 5          | 6          | 8          | 9          |
| Asian                                    | ***              | ***        | ***        | ***        | ***        | 1          | ***        | ***        | ***        | ***        |
| Other                                    | ***              | 2          | 2          | 2          | 2          | 4          | 4          | 4          | 4          | 5          |
| <b>Age</b>                               |                  |            |            |            |            |            |            |            |            |            |
| 17 and Younger                           | 3                | 3          | ***        | ***        | 1          | ***        | ***        | ***        | ***        | ***        |
| 18–25                                    | 35               | 33         | 37         | 31         | 28         | 28         | 29         | 26         | 20         | 16         |
| 26–34                                    | 28               | 24         | 25         | 28         | 29         | 31         | 34         | 32         | 40         | 39         |
| 35 and Older                             | 34               | 40         | 37         | 41         | 42         | 41         | 37         | 42         | 40         | 45         |
| <b>Total Primary Admissions (Number)</b> | <b>460</b>       | <b>534</b> | <b>476</b> | <b>455</b> | <b>592</b> | <b>712</b> | <b>779</b> | <b>671</b> | <b>523</b> | <b>478</b> |

<sup>1</sup>The symbol \*\*\* signifies fewer than six admissions.

SOURCE: Massachusetts Department of Public Health, Bureau of Substance Abuse Services; prepared by the Boston Public Health Commission, Research Office

**Exhibit 4d. Characteristics of Client Admissions in State-Funded Substance Abuse Treatment Programs with a Primary Marijuana Problem, by Percentage, Boston Residents: 2004–2013**

| Characteristic                           | Percentage (%)   |            |            |            |            |            |            |            |            |            |
|--|------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
|  | 2004             | 2005       | 2006       | 2007       | 2008       | 2009       | 2010       | 2011       | 2012       | 2013       |
| <b>Gender</b>                            |                  |            |            |            |            |            |            |            |            |            |
| Male                                     | 69               | 79         | 77         | 74         | 77         | 81         | 77         | 72         | 76         | 77         |
| Female                                   | 31               | 21         | 23         | 26         | 23         | 19         | 23         | 28         | 24         | 23         |
| Transgender                              | *** <sup>1</sup> | ***        | ***        | ***        | ***        | ***        | ***        | ***        | ***        | ***        |
| <b>Race/Ethnicity</b>                    |                  |            |            |            |            |            |            |            |            |            |
| White                                    | 22               | 20         | 23         | 17         | 20         | 18         | 19         | 22         | 19         | 26         |
| Black                                    | 54               | 55         | 52         | 56         | 52         | 55         | 54         | 46         | 47         | 44         |
| Latino                                   | 20               | 21         | 22         | 22         | 22         | 22         | 23         | 24         | 26         | 26         |
| Asian                                    | 1                | ***        | ***        | ***        | 1          | ***        | ***        | ***        | 1          | ***        |
| Other                                    | 3                | 4          | 3          | 3          | 5          | 5          | 4          | 8          | 7          | 4          |
| <b>Age</b>                               |                  |            |            |            |            |            |            |            |            |            |
| 17 and Younger                           | 5                | 14         | 6          | 4          | 7          | 4          | 8          | 14         | 13         | 12         |
| 18–25                                    | 46               | 43         | 47         | 50         | 49         | 43         | 45         | 40         | 38         | 36         |
| 26–34                                    | 26               | 22         | 25         | 27         | 24         | 30         | 26         | 23         | 26         | 28         |
| 35 and Older                             | 23               | 21         | 22         | 19         | 20         | 22         | 21         | 24         | 23         | 24         |
| <b>Total Primary Admissions (Number)</b> | <b>658</b>       | <b>694</b> | <b>717</b> | <b>689</b> | <b>642</b> | <b>808</b> | <b>738</b> | <b>594</b> | <b>532</b> | <b>512</b> |

<sup>1</sup>The symbol \*\*\* signifies fewer than six admissions.

SOURCE: Massachusetts Department of Public Health, Bureau of Substance Abuse Services; prepared by the Boston Public Health Commission, Research Office

**Exhibit 5. Number and Percentage of Police Department Arrests, by Drug Class,<sup>1</sup>  
Boston: 2009–2012**

| Drug Class                     | 2009            | 2010            | 2011            | 2012            |
|--------------------------------|-----------------|-----------------|-----------------|-----------------|
|                                | %<br>(Number)   | %<br>(Number)   | %<br>(Number)   | %<br>(Number)   |
| <b>A</b><br>(Mostly Heroin)    | 22.4<br>(716)   | 21.7<br>(623)   | 24.6<br>(592)   | 28.3<br>(803)   |
| <b>B</b><br>(Mostly Cocaine)   | 49.4<br>(1,575) | 47.9<br>(1,376) | 49.0<br>(1,178) | 42.6<br>(1,209) |
| <b>D</b><br>(Mostly Marijuana) | 21.2<br>(677)   | 21.3<br>(613)   | 17.9<br>(431)   | 18.1<br>(513)   |
| Other                          | 7.0<br>(222)    | 9.1<br>(263)    | 8.5<br>(204)    | 11.1<br>(316)   |
| <b>Total Drug Arrests</b>      | <b>3,190</b>    | <b>2,875</b>    | <b>2,405</b>    | <b>2,841</b>    |

<sup>1</sup>Includes all arrests made by the Boston Police Department (i.e., arrests for possession, distribution, manufacturing, trafficking, possession of hypodermic needles, conspiracy to violate false substance acts, and forging prescriptions).

SOURCE: Boston Police Department, Office of Planning and Research; prepared by the Boston Public Health Commission, Research Office

**Exhibit 6. Top 20 Most Frequently Identified Drug Reports Among Drug Items Seized from Area Drug Arrests and Analyzed in NFLIS Forensic Laboratories, by Substance,<sup>1</sup> Boston: 2013**

| Drug   | 2013         |              |
|--|--------------|--------------|
|  | Number       | Percentage   |
| Marijuana/Cannabis   | 3,100        | 35.5         |
| Cocaine  | 1,729        | 19.8         |
| Heroin   | 1,652        | 18.9         |
| Oxycodone  | 409          | 4.7          |
| Buprenorphine  | 201          | 2.3          |
| Clonazepam   | 135          | 1.5          |
| Amphetamine  | 118          | 1.4          |
| Naloxone   | 85           | 1.0          |
| Alprazolam   | 76           | 0.9          |
| Methylone (N-methyl-3,4-methylenedioxycathinone)                                 | 69           | 0.8          |
| Phenylimidothiazole Isomer Undetermined  | 55           | 0.6          |
| Gabapentin   | 54           | 0.6          |
| XLR-11 (1-(5-fluoropentyl-1h-3-yl)<br>(2,2,3,3-tetramethylcyclopropyl)methanone) | 45           | 0.5          |
| Hydrocodone  | 34           | 0.4          |
| Clonidine  | 31           | 0.4          |
| Methamphetamine  | 28           | 0.3          |
| Diazepam   | 25           | 0.3          |
| Methadone  | 25           | 0.3          |
| Lorazepam  | 24           | 0.3          |
| Quetiapine   | 21           | 0.2          |
| <b>Total Number of Reports</b>   | <b>7,916</b> | <b>8,729</b> |

<sup>1</sup>Percentages based on total number of drug reports.

NOTES: Due to issues within the Massachusetts Department of Public Health's Western Laboratory, data were last reported in August 2012. Due to issues within the other Massachusetts Department of Public Health laboratories, data were last reported in December 2012. As a result, 2013 data should not be compared with prior years.

SOURCE: NFLIS, DEA



**Exhibit 7. Retail (Street-Level) Drug Price, Purity, and Availability, New England: July–December 2013**

| Drug                         | Price  | Availability      |
|------------------------------|--|-------------------|
| Heroin                       | \$50–\$200 per Gram  | Readily Available |
| Cocaine (Powder)             | \$18–\$160 per Gram  | Available         |
| Crack Cocaine                | \$10–\$100 per Rock<br>\$28–\$150 per Gram                   | Available         |
| Marijuana                    | \$80–\$350 per Ounce<br>\$250–\$400 per Ounce (High Potency) | Readily Available |
| Methamphetamine              | \$80–\$200 per Gram  | Low               |
| MDMA (Ecstasy)               | \$10–\$30 per Dosage Unit                                    | Low               |
| OxyContin®                   | \$30–\$120 per 80 mg <sup>1, 2</sup>                         | Readily Available |
| Oxycodone                    | \$10–\$50 per 30 mg <sup>1, 2</sup>                          | Readily Available |
| Percocet                     | \$14–\$30 per 30 mg  | Readily Available |
| PCP (Phencyclidine)          | \$10–\$20 per Tea Leaf Bag (1–2 Grams)<br>\$10–\$25 per Gram | Low               |
| Ketamine                     | \$75–\$100 per Dosage Unit                                   | Available         |
| GHB (Gamma Hydroxy Butyrate) | \$150 per Ounce  | Available         |
| Psilocybin (Mushrooms)       | \$1,000–\$3,600 per Pound                                    | Low               |

<sup>1</sup>The lower end of the price ranges depicted for OxyContin® and oxycodone reflect the wholesale purchase price. The higher end of the price ranges reflects the retail purchase price.

<sup>2</sup>mg=milligram.

SOURCE: New England Field Division, DEA, July–December 2013